

Claims:

1 1. A reloadable launcher for use with rocket-propelled
2 projectiles, comprising:

3 an inner tube and an outer tube fixedly coupled to one
4 another to define a concentric tube arrangement with at least
5 one gas flow channel being defined therebetween, said inner
6 tube being capable of supporting a launch of a rocket-
7 propelled projectile therefrom wherein gases produced during
8 the launch are directed toward and escape from a breech end
9 of said inner tube while the projectile is propelled towards
10 a muzzle end of said inner tube;

11 a ring fixedly coupled to a first end of said outer
12 tube that is adjacent to said breech end of said inner tube,
13 said ring defining a keyway and an annular channel between
14 said keyway and said first end of said outer tube;

15 a cap having a concave inner surface, said cap
16 terminating in a peripheral edge that defines a key shaped
17 for passage through said keyway of said ring wherein, when
18 said concave inner surface faces said breech end and said key
19 is aligned with and moved axially through said keyway, said
20 key resides in said annular channel adjacent said first end
21 of said outer tube, said cap further having a central portion
22 thereof that is aligned with a central longitudinal axis of
23 said inner tube when said key resides in said annular

24 channel; and

25 a link hingedly coupled on one end thereof to said ring
26 to permit said cap to be moved such that a projectile can be
27 loaded into said inner tube from said breech end thereof,
28 said link further being rotationally coupled to said cap at
29 said central portion thereof such that said cap can be
30 rotated about said central portion wherein, when said key
31 resides in said annular channel and said cap is rotated about
32 said central portion, said key is misaligned with said keyway
33 wherein said cap is axially locked to said outer tube.

1 2. A reloadable launcher as in claim 1 wherein said keyway
2 is defined by a plurality of spaced apart radially extending
3 slots and said key is defined by a corresponding plurality of
4 spaced apart radially extending projections sized and shaped
5 for passage through said plurality of spaced apart radially
6 extending slots.

1 3. A reloadable launcher as in claim 1 wherein an inner
2 periphery of said outer tube at said first end thereof aligns
3 with said cap when said key resides in said annular channel
4 such that said inner periphery is contiguous with said
5 concave inner surface of said cap.

1 4. A reloadable launcher as in claim 1 wherein said concave
2 inner surface of said cap is semi-spherical.

1 5. A reloadable launcher as in claim 1 wherein said concave
2 inner surface of said cap is hemispherical.

1 6. A reloadable launcher for use with rocket-propelled
2 projectiles, comprising:

3 a concentric canister launch tube arrangement having an
4 inner tube fixedly coupled to an outer tube with open-ended
5 gas flow ducts being defined therebetween and along the
6 length thereof, said inner tube being capable of supporting a
7 launch of a rocket-propelled projectile therefrom wherein
8 gases produced during the launch are directed toward and
9 escape from a breech end of said inner tube while the
10 projectile is propelled towards a muzzle end of said inner
11 tube;

12 a ring fixedly coupled to a first end of said outer
13 tube that is aligned with said breech end of said inner tube,
14 said ring extending axially from said outer tube, said ring
15 defining a keyway and an annular channel between said keyway
16 and said first end of said outer tube;

17 a hemispherical cap terminating in a peripheral edge
18 that defines a key shaped for passage through said keyway of
19 said ring wherein, when said key is aligned with and moved
20 axially through said keyway, said key resides in said annular
21 channel adjacent said first end of said outer tube; and

22 means for coupling said hemispherical cap to said ring
23 to permit said hemispherical cap to be (i) moved such that a
24 projectile can be loaded into said inner tube from said

25 breech end thereof, and (ii) rotated when said key resides in
26 said annular channel to misalign said key and said keyway
27 thereby axially locking said hemispherical cap to said outer
28 tube, wherein said gases produced by the launch are re-
29 directed by said hemispherical cap towards said open-ended
30 gas flow ducts.

1 7. A reloadable launcher as in claim 6 wherein said keyway
2 is defined by a plurality of spaced apart radially extending
3 slots and said key is defined by a corresponding plurality of
4 spaced apart radially extending projections sized and shaped
5 for passage through said plurality of spaced apart radially
6 extending slots.

1 8. A reloadable launcher as in claim 6 wherein an inner
2 periphery of said outer tube at said first end thereof aligns
3 with said hemispherical cap when said key resides in said
4 annular channel such that said inner periphery is contiguous
5 with said hemispherical cap.

1 9. A reloadable launcher for use in an arrayed arrangement
2 of reloadable launchers where each said reloadable launcher
3 is capable of firing a rocket-propelled projectile therefrom,
4 each said reloadable launcher comprising:

5 a concentric canister launch tube arrangement having an
6 inner tube fixedly coupled to an outer tube with open-ended
7 gas flow ducts being defined therebetween and along the
8 length thereof, said inner tube being capable of supporting a
9 launch of a rocket-propelled projectile therefrom wherein
10 gases produced during the launch are directed toward and
11 escape from a breech end of said inner tube while the
12 projectile is propelled towards a muzzle end of said inner
13 tube;

14 a ring fixedly coupled to a first end of said outer
15 tube that is aligned with said breech end of said inner tube,
16 said ring extending axially from said outer tube, said ring
17 having a keyway and an annular channel between said keyway
18 and said first end of said outer tube, said ring further
19 defining at least one support extending radially outward
20 therefrom wherein said at least one support can be used as a
21 point of coupling to another ring associated with an adjacent
22 one of the reloadable launchers in the arrayed arrangement
23 thereof;

24 a hemispherical cap terminating in a peripheral edge

25 that defines a key shaped for passage through said keyway of
26 said ring wherein, when said key is aligned with and moved
27 axially through said keyway, said key resides in said annular
28 channel adjacent said first end of said outer tube; and

29 means for coupling said hemispherical cap to said ring
30 to permit said hemispherical cap to be (i) moved such that a
31 projectile can be loaded into said inner tube from said
32 breech end thereof, and (ii) rotated when said key resides in
33 said annular channel to misalign said key and said keyway
34 thereby axially locking said hemispherical cap to said outer
35 tube, wherein said gases produced by the launch are re-
36 directed by said hemispherical cap towards said open-ended
37 gas flow ducts.

1 10. A reloadable launcher as in claim 9 wherein said keyway
2 is defined by a plurality of spaced apart radially extending
3 slots and said key is defined by a corresponding plurality of
4 spaced apart radially extending projections sized and shaped
5 for passage through said plurality of spaced apart radially
6 extending slots.

1 11. A reloadable launcher as in claim 9 wherein an inner
2 periphery of said outer tube at said first end thereof aligns
3 with said hemispherical cap when said key resides in said

4 annular channel such that said inner periphery is contiguous
5 with said hemispherical cap.